This carbon is gasified by means of air at 0°, the air, therefore, introducing no free heat energy into the producer.
In the mass, as gasification takes place, solid carbon disappears, and becomes changed into the products of gasification, which must, therefore, in the moments of their origin, take up the whole quantity of energy produced, which they are of course able to give off later in greater or less scale to other substances capable of taking up energy.
"Were theoretically pure air-gas produced, one would obtain from formula (10); p. 28, from 1 kilogramme C, l'S6 cubic metre CO+3'50 cubic metres N=5*36 cubic metres gas, which at the moment of origin would be endowed with the total available amount of energy. This, from the foregoing, amounts to 2,700 calories.
From the definition of specific heat, the amount of heat Q which is contained in a substance is equal to the temperature of the substance multiplied by its specific heat and weight, or corresponding volume thereof Q = ctv, and therefore Q must be equal to
2,700=c (1-86 cubic metre CO+3'50 cubic metres N) t.
From the preceding this equation can be transferred into
t=— and, cv
.' t=_____2,700_____ .
c(l*86 cubic metre CO + 8-50 cubic metres N)
In this equation c is dependent on t, and one obtains both most conveniently by means of the method of approximation which is given by Th. Beckert in his treatise "Feuerungs-kunde." According to the tables of the " mean specific heats of 1 cubic metre gas " in the introduction, the specific heat of CO and N is equal, and amounts at 1,200° to 0*3534, and at 1,100° to 0*3496, the mean of which or 0*3515 is taken for the specific heat at 1,150°, whilst 1*86 cubic metre CO+3'50 cubic metres N=5'36 cubic metres. It is thus 5-8tfxO'3515=r884,
whence t=~=1,433
Inasmuch as the temperature yielded was higher than that assumed, the specific heat was selected at too low a figure: on